



**MOTION TECHNOLOGIES  
PTY LTD**

# **PLANETARY REDUCERS**



Ideal for use with:

- Servo Motors
- BLDC Motors
- Stepper Motors
- Brush Motors

## Contents

### **A) JX Miniature Planetary Series..... 3-9**

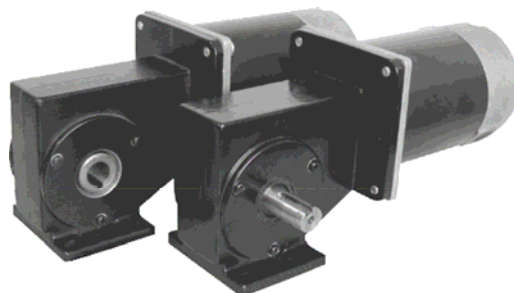
- **7 frame diameters  $\varnothing 22$ ,  $\varnothing 24$   $\varnothing 28$ ,  $\varnothing 36$ ,  $\varnothing 40$ ,  $\varnothing 48$  &  $\varnothing 60$**



### **B) NN Servo Planetary Series ..... 10-12**

- **Ratio range: 1:5 ~ 10,000**
- **Low noise, <65 dB**
- **Long life, > 20,000 hours**

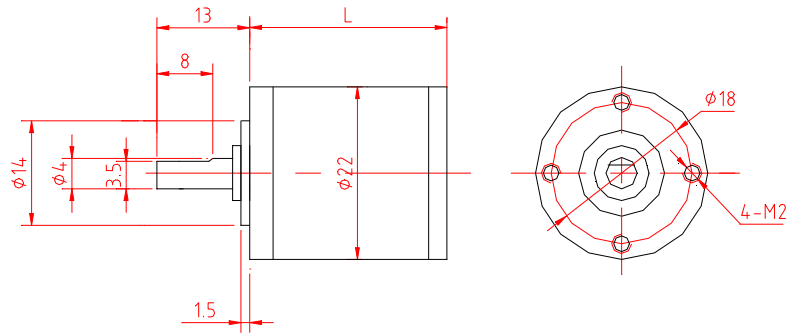
### **B) Worm Gearbox ..... 13**



# 22JXG05K

Housing material	Metal
Bearing at output	Sleeve bearings
Radial load(10mm from flange)	≤1 kg
Shaft axial load	≤0.6 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤5 kg

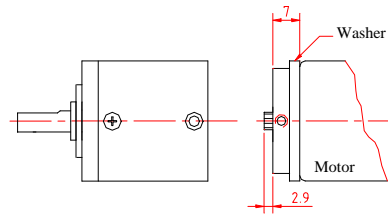
## ● Dimensions



## ● Pinion Specifications

Module	0.4	
No. of teeth	11	17
Pressure angle	20°	
Hole diameter	Ø2.02 Ø2.32	
Reduction ratio	1/5.2 1/27 1/139 1/720 1/3730	1/3.7 1/14 1/19 1/51 1/71 1/100 1/189 1/264 1/369 1/516 1/981 1/1370 1/1913 1/2671

## ● Motor Installation



## ● Motor Installation

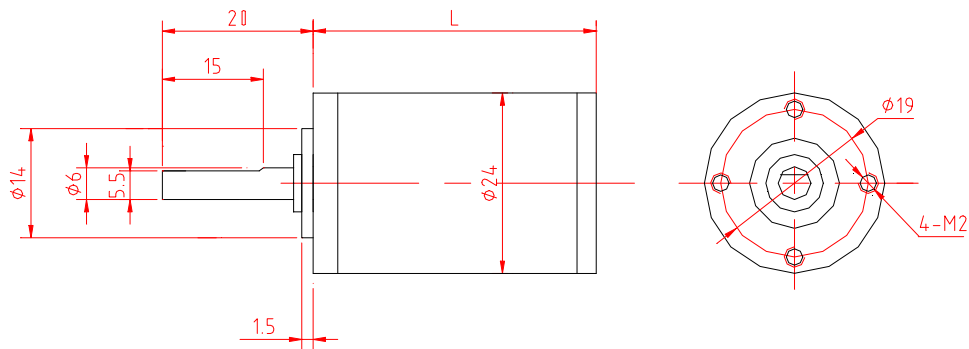
Reduction ratio	Exact reduction ratio	Rated tolerance torque	Max momentary tolerance torque	Efficiency	Length (mm)	Weight (g)
1/3.7 1/5.2	1/3.71 1/5.18	1 kg.cm	3 kg.cm	90 %	26.0±0.5	30
1/14 1/19 1/27	1/13.76 1/19.22 1/26.83	2 kg.cm	6 kg.cm	81 %	28.0±0.5	34
1/51 1/71 1/100 1/139	1/51.06 1/71.30 1/99.55 1/138.99	3 kg.cm	9 kg.cm	73 %	32.5±0.5	42
1/189 1/264 1/369 1/516 1/720	1/189.45 1/264.52 1/369.32 1/515.66 1/719.98	4 kg.cm	12 kg.cm	66 %	37.5±0.5	45
1/981 1/1370 1/1913 1/2671 1/3730	1/981.35 1/1370.2 1/1913.1 1/2671.1 1/3729.5	5 kg.cm	15 kg.cm	59 %	42.0±0.5	50

- Humidity: 20% ~ 85%RH
- Temperature: -10°C ~ +80°C
- Materials: 1DoPont DELRIN 100P
- Recommended input speed less than <5000rpm

# 24JXG10K

Housing material	Metal
Bearing at output	Ball bearings
Radial load (10mm from flange)	≤1.5 kg
Shaft axial load	≤0.9 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤6 kg

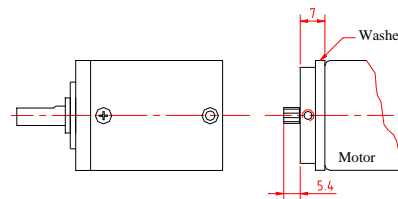
## ● Dimensions



## ● Pinion Specifications

Module	0.4	
No. of teeth	11	17
Pressure angle	20°	
Hole diameter	$\phi 2.02$ $\phi 2.32$	
Reduction ratio	1/5.2 1/139	1/27 1/720 1/3.7 1/71 1/14 1/100 1/189 1/369 1/19 1/51 1/264 1/516

## ● Motor Installation



## ● Motor Installation

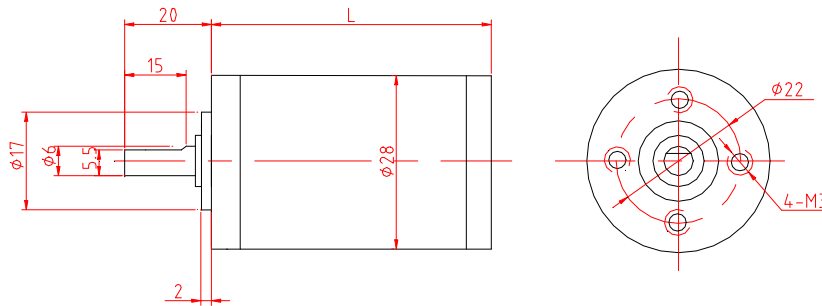
Reduction ratio	Exact reduction ratio	Rated tolerance torque	Max momentary tolerance torque	Efficiency	Length (mm)	Weight (g)
1/3.7 1/5.2	1/3.71 1/5.18	1 kg.cm	3 kg.cm	90 %	26.0±0.5	42
1/14 1/19 1/27	1/13.76 1/19.22 1/26.83	2 kg.cm	6 kg.cm	81 %	34.5±0.5	51
1/51 1/71 1/100 1/139	1/51.06 1/71.30 1/99.55 1/138.99	5 kg.cm	15 kg.cm	73 %	42.5±0.5	62
1/189 1/264 1/369 1/516 1/720	1/189.45 1/264.52 1/369.32 1/515.66 1/719.98	10 kg.cm	30 kg.cm	66 %	51.0±0.5	74

- Humidity: 20% ~ 85%RH
- Temperature: -10°C ~ +80°C
- Materials: 1DoPont DELRIN 100P
- The direction of output shaft is the same with the input shaft
- Recommended input speed less than <8000rpm

# 28JXG20K

Housing material	Metal
Bearing at output	Ball bearing
Radial load (10mm from flange)	≤3.5 kg
Shaft axial load	≤2.5 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤10 kg

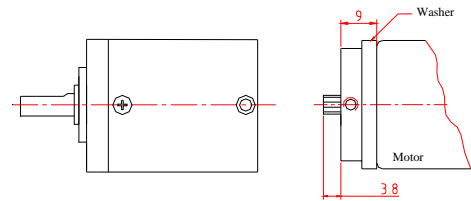
## ● Dimensions



## ● Pinion Specifications

Module	0.5	
No. of teeth	11	17
Pressure Angle	20°	
Hole diameter	∅2.02 ∅2.32	
Reduction Ratio	1/5.2 1/139	1/27 1/720 1/3.7 1/14 1/19 1/51 1/71 1/100 1/189 1/264 1/369 1/516

## ● Motor Installation



## ● Motor Installation

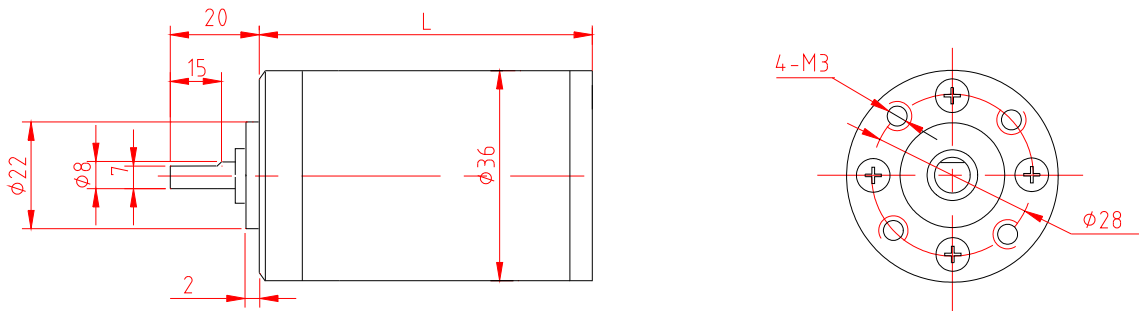
Nom. Reduction Ratio	Exact reduction ratio	Rated Torque	Peak Torque	Efficiency	L (mm)	Weight (g)
1/3.7 1/5.2	1/3.71 1/5.18	2 kg.cm	6 kg.cm	90 %	31.5 ±0.5	59
1/14 1/19 1/27	1/13.76 1/19.22 1/26.83	4 kg.cm	12 kg.cm	81 %	40.0 ±0.5	82
1/51 1/71 1/100 1/139	1/51.06 1/71.30 1/99.55 1/138.99	10 kg.cm	30 kg.cm	73 %	48.5 ±0.5	92
1/189 1/264 1/369 1/516 1/720	1/189.45 1/264.52 1/369.32 1/515.66 1/719.98	20 kg.cm	60 kg.cm	66 %	57.5 ±0.5	107

- Humidity: 20% ~ 85% RH
- Temperature: -10 °C ~ +80 °C
- Materials: 1 DuPont DELRIN 100P, 2 Metallurgical powders, 3 Steel
- The direction of output shaft is the same with the input shaft
- Recommended input speed less than 5000rpm

# 36JXG30K

Housing material	Metal
Bearing at output	Ball bearings
Radial load(10mm from flange)	≤5 kg
Shaft axial load	≤3.5 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤15 kg

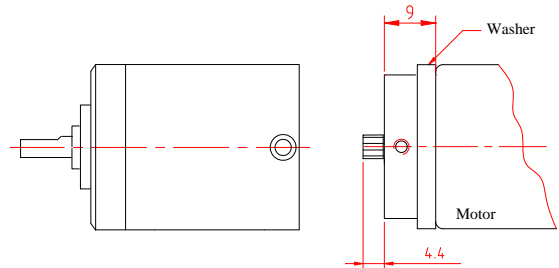
## ● Dimensions



## ● Pinion Specifications

Module	0.5	
No. of teeth	11	17
Pressure angle	20°	
Hole diameter	∅2.98	∅3.16 ∅3.48
Reduction ratio	1/5.2 1/27 1/139 1/720	1/3.7 1/14 1/19 1/51 1/71 1/100 1/189 1/264 1/369 1/516

## ● Motor Installation



## ● Motor Installation

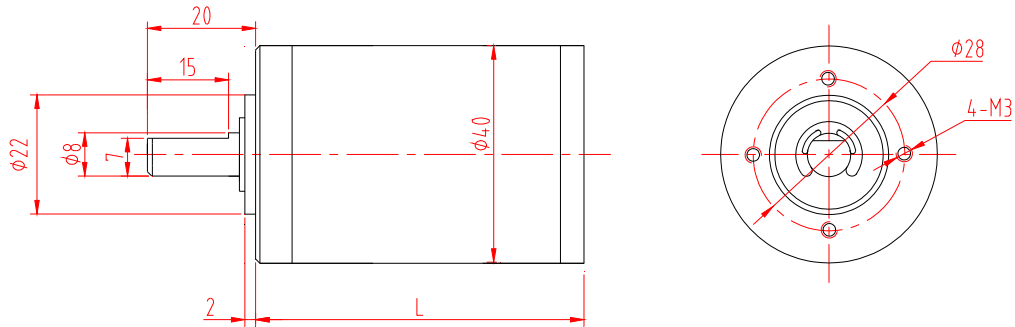
Reduction ratio	Exact reduction ratio	Rated tolerance torque	Max momentary tolerance torque	Efficiency	Length (mm)	Weight (g)
1/3.7 1/5.2	1/3.71 1/5.18	3 kg.cm	9 kg.cm	90 %	31.5±0.5	191
1/14 1/19 1/27	1/13.76 1/19.22 1/26.83	10 kg.cm	30 kg.cm	81 %	38.5±0.5	207
1/51 1/71 1/100 1/139	1/51.06 1/71.30 1/99.55 1/138.99	20 kg.cm	60 kg.cm	73 %	48.5±0.5	288
1/189 1/264 1/369 1/516 1/720	1/189.45 1/264.52 1/369.32 1/515.66 1/719.98	30 kg.cm	90 kg.cm	66 %	55.5±0.5	312

- Humidity: 20%~85%RH
- Temperature: -10°C~+80°C
- Materials: 1 DuPont DELRIN 100P, 2 Metallurgical powders, 3 Steel
- The direction of output shaft is the same with the input shaft
- Max. input speed < 4000rpm

# 40JXG50K

Housing material	Metal
Bearing at output	Ball bearings
Radial load (10mm from flange)	≤6 kg
Shaft axial load	≤4 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤15 kg

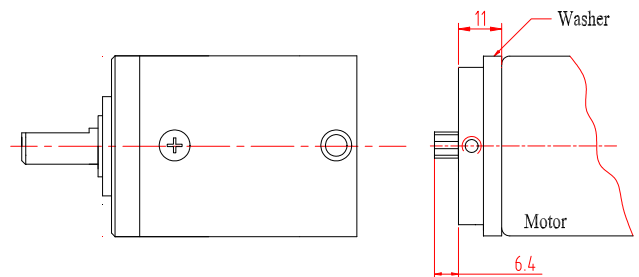
## ● Dimensions



## ● Pinion Specifications

Module	0.5			
No. of teeth	16	22		
Pressure angle	20°			
Hole diameter	$\phi 3.98$	$\phi 3.16$	$\phi 4.48$	$\phi 4.98$
Reduction ratio	1/3.8	1/24	1/4.9	1/15
	1/116	1/565	1/56	1/71
			1/19	1/91
			1/212	1/271
			1/346	1/442

## ● Motor Installation



## ● Motor Installation

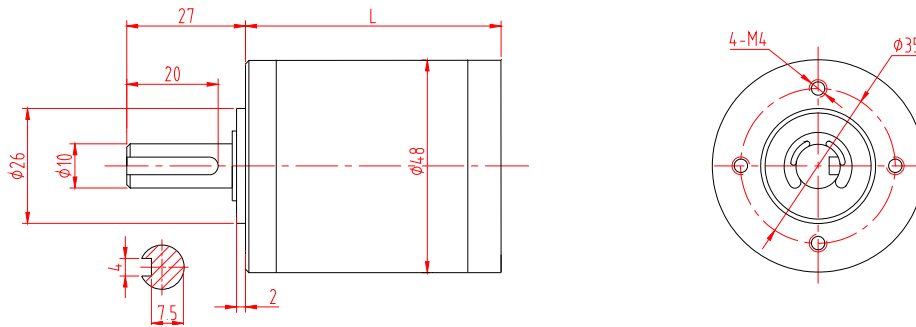
Reduction ratio	Exact reduction ratio	Rated torque	Max momentary tolerance torque	Efficiency	Leingh (mm)	Weight (g)
1/3.8 1/4.9	1/3.82 1/4.88	5 kg.cm	15 kg.cm	90 %	35.5±0.5	196
1/15 1/19 1/24	1/14.58 1/18.61 1/23.77	20 kg.cm	60 kg.cm	81 %	45.5±0.5	264
1/56 1/71 1/91 1/116	1/55.66 1/71.06 1/90.74 1/115.86	50 kg.cm	150 kg.cm	73 %	55.5±0.5	331
1/212 1/271 1/346 1/442 1/565	1/212.49 1/271.32 1/346.43 1/442.34 1/564.8	50 kg.cm	150 kg.cm	66 %	65.5±0.5	401

- Humidity: 20%~85%RH
- Temperature: -10°C~+80°C
- Gearing: Delrin
- Max. input speed: <4000rpm

# 48JXG50K

Housing material	Metal
Bearing at output	Ball bearings
Radial load (10mm from flange)	≤10 kg
Shaft axial load	≤7 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤20 kg

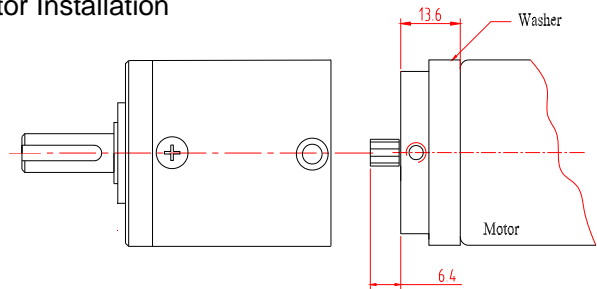
## ● Dimensions



## ● Pinion Specifications

Module	0.5			
No. of teeth	16	22		
Pressure angle	20°			
Hole diameter	Φ 3.16	Φ 3.98	Φ 4.48	Φ 4.98
Reduction ratio	1/24 1/116	1/15	1/19	1/56 1/71 1/91

## ● Motor Installation



## ● Motor Installation

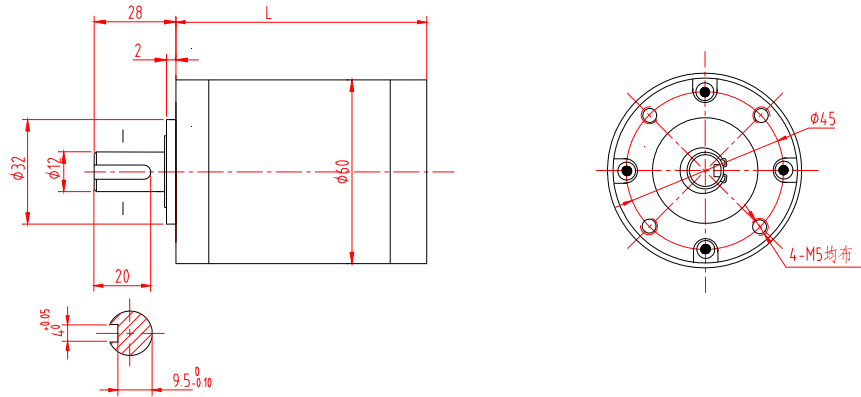
Reduction ratio	Exact reduction ratio	Rated torque	Peak torque	Efficiency	L (mm)	Weight(g)
1/15 1/19 1/24	1/14.58 1/18.61 1/23.77	20 kg.cm	60 kg.cm	81 %	42.5±0.5	426
1/56 1/71 1/91 1/116	1/55.66 1/71.06 1/90.74 1/115.86	50 kg.cm	150 kg.cm	73 %	52.5±0.5	557

- Humidity: 20% ~ 85% RH
- Temperature: -10°C ~ +80°C
- Gearing: Delrin
- Max. input speed: <4000rpm

# 60JXG300K

Housing material	Metal
Bearing at output	Ball bearings
Radial load (10mm from flange)	≤20 kg
Shaft axial load	≤10 kg
Radial play of shaft	≤0.04 mm
Thrust play of shaft	≤0.3 mm
Backlash, at no-load	≤3°
Shaft press fit force, max	≤30 kg

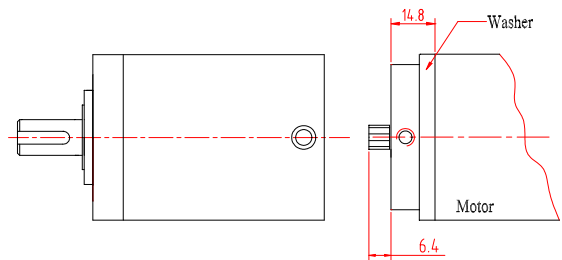
## ● Dimensions



## ● Pinion Specifications

Module	1.0	
No. of teeth	12	15
Pressure angle	20°	
Hole diameter	∅6.01	
Reduction ratio	1/4.3 1/18 1/77 1/326	1/3.6 1/13 1/15 1/47 1/55 1/65 1/168 1/198 1/234 1/276

## ● Motor Installation



## ● Motor Installation

Reduction ratio	Exact reduction ratio	Rated tolerance torque	Max momentary tolerance torque	Efficiency	Length (mm)	Weight (g)
1/3.6 1/4.3	1/3.6 1/4.25	15 kg.cm	45 kg.cm	90 %	52.0±0.5	660
1/13 1/15 1/18	1/12.96 1/15.30 1/18.06	50 kg.cm	150 kg.cm	81 %	52.0±0.5	745
1/47 1/55 1/65 1/77	1/46.66 1/55.08 1/65.03 1/76.77	100 kg.cm	300 kg.cm	73 %	63.5±0.5	922
1/168 1/198 1/234 1/276 1/326	1/167.96 1/198.29 1/234.09 1/276.36 1/326.25	150 kg.cm	450 kg.cm	66 %	74.5±0.5	1098
1/168 1/198 1/234 1/276 1/326	1/167.96 1/198.29 1/234.09 1/276.36 1/326.25	300 kg.cm	900 kg.cm	66 %	83.0±0.5	1277

- Humidity: 20% ~ 85% RH
- Temperature: -10 to ~ +80°C
- Plastic gears
- For motor size FL56
- Max. input speed – 300rpm

# NN Series Precision Planetary Reducer



New series of precise reducer for stepper motor, servomotor and DC motor is designed on the principle of planetary gear transmission. It features high wear resistance, impact resistance, high transmission efficiency, wide speed ratio range, high load carrying capacity, low heat-emission, small size and light weight.


It is suitable for a variety of servomotors, stepper motors and DC motors.

Product Characteristics:

- High rigidity and impact resistance
- Compact structure providing the smallest reducer in its class
- Nitride hardened alloy steel gears.
- High transmission of torque
- Multi-cog gear mesh provides evenly applied load.
- High-pressure die-casting aluminum alloy housing provides enhanced thermal conductivity to reduce internal temperature.
- High transmission efficiency
- Large transmission power
- High radial carrying capacity output shaft
- Ratio range: 1:5 ~ 10,000 (model dependent, but can be piggy-backed on application)
- Optimized design to achieve the best match between torque and speed
- With small gear backlash and high precision for transmission
- Designed for maintenance-free performance with grease lubrication.
- Low noise, <65 dB
- Long life, > 20,000 hours
- Cost-effective

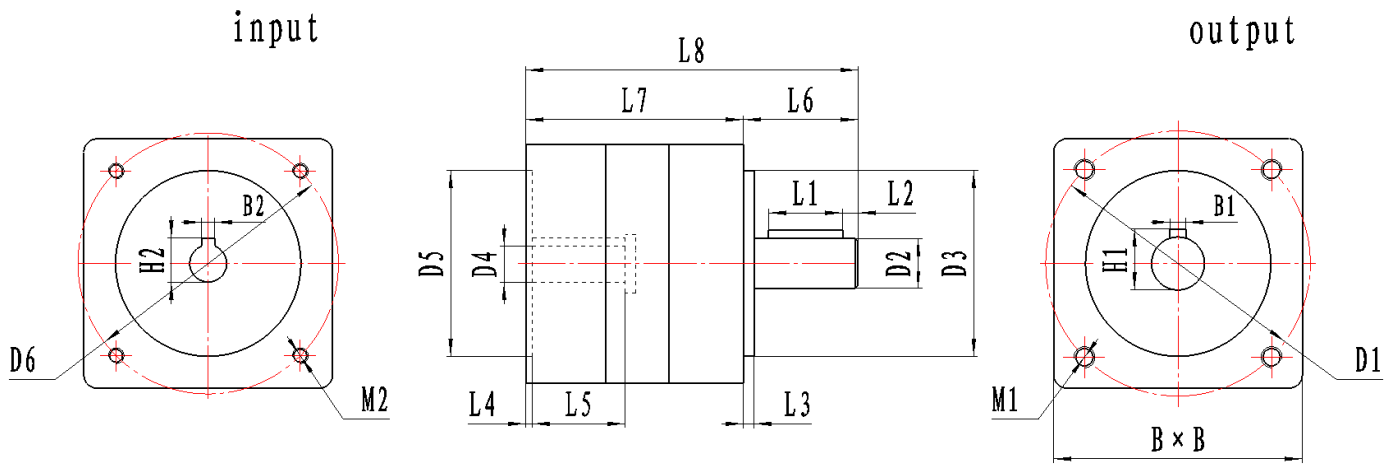
## Performance and Mounting dimensions:

Model	Ratio	NN40	NN60	NN80	NN90	NN110	NN120	NN130	NN145
Rated output torque, Nm	3	6	20		55		85		200
	5	8	25		60		100	Tba	250
	7	8	25		60		120		280
	8								
	9	10	30		70		180		300
	10	10	30		70	Tba	200	Tba	350
	15	10	30		70		200	Tba	350
	20	10	35		90		200	Tba	350
	25			Tba					
	30	10	35		90		200		400
	40	15	40	Tba	100	Tba	240	Tba	400
	50								
	60	15	40		100		240		450
	80	15	40		100		250		450
	100	20	45		120		250		450
	120				tba				
	150	20	45		120		260		500
	196					Tba			
	200	20	45		120		260		500
2025	On application								
<b>Peak Torque, Nm</b>	~1.5 to 2 times rated output torque								

 = Available on request

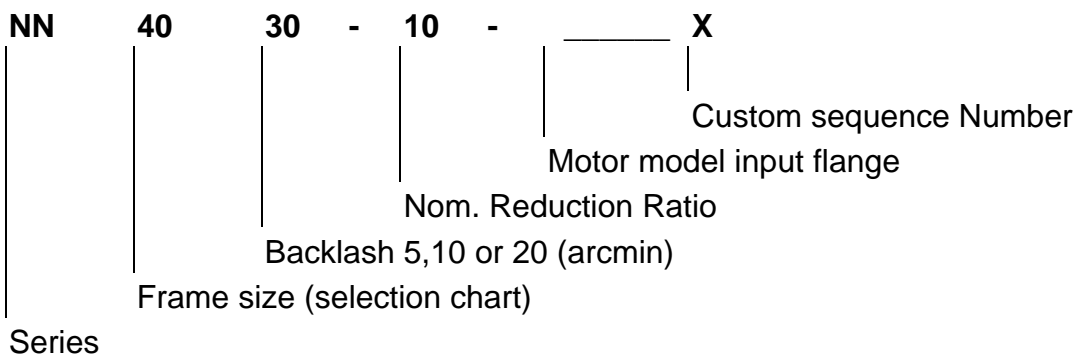
Nominal ratio request actual if critical. Custom ratios available

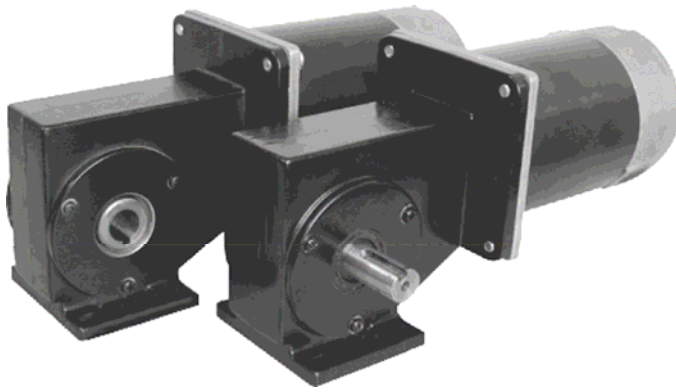
Model	Unit	NN40	NN60	NN90	NN120	NN145
Max Radial force	N	260	480	910	1750	2723
Max axial force	N	150	310	580	850	1350
Backlash (3 Choice)	Arcmin	≤5, ≤10, ≤20				
Torsional rigidity	Nm/Arcmin	1.5	3	5	7	11
Max input speed	Min-1	5000	5000	4500	4500	4000
Rated input speed	Min-1	3000	3000	2500	2500	2000
Running noise	dB(A)	≤56	≤60	≤65	≤68	≤70
Full-loaded efficiency	%	>90%	>90%	>90%	>90%	>90%
Average lifetime	hours	>20000	>20000	>20000	>20000	>20000
Weight	kg	0.7	1.4	2.8	8.6	22
Rotation direction		Opposite to motor				
Lubrication		Maintenance-free				
IP degree		IP55				
Installation position		Any				



	Model	NN40	NN60	NN90	NN120	NN145
B	Housing dimension	45×45	65×65	94×94	120×120	145×145
B1	Output key dimension	3×3	5×5	6×6	8×7	12×8
B2	Input key dimension			5×5	6×6	8×7
M1	Output thread	M5×12	M5×12	M8×20	M10×25	M12×30
M2	Input thread	M4×10	M5×12	M6×15	M8×22	M10×25
H1	Output shaft length	11.2	16	22.5	28	43
H2	Input shaft length			16.5	25	38.5
D1	Flange hole circle	50	70	100	130	165
D2	Output shaft diameter	10	14	20	25	40
D3	Output diameter	26	40	80	110	130
D4	Input pinion	5	8	14	22	35
D5	Input center bore for motor	22	38.1	73	110	114.3
D6	Hole circle	46	66.67	100	130	165
L1	Key length	15	25	28	40	65
L2	Distance from shaft end	4	2.5	5	5	7
L3	Output thickness	2	3	4	4	5
L4	Motor location depth	3.5	3.5	2.5	6.5	7
L5	Input shaft length	25	30	40	50	65
L6	Output shaft length	26	35	40	55	87
L7	Body length	70	80	82	135	150
L8	Overall length	96	115	122	190	237

## Order Code:



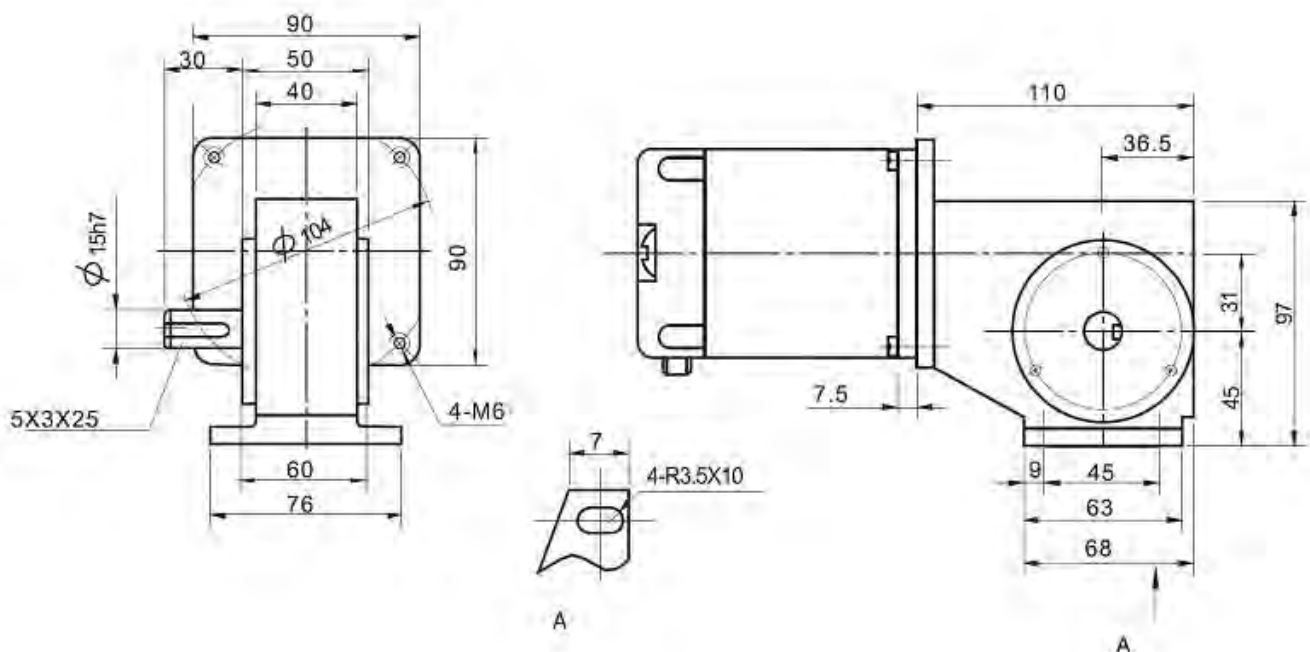


# 90JWG200K

## ● Gear Motor Technical Data

Reduction ratio		50	40	32	25	16	12.5
No-Load speed	r/min	60	75	93	120	187	240
Rated speed	r/min	46	57	71	92	143	184
Rated torque	kg.cm	105	84	67	52	38	30

## ● Dimensions



# MICRON



Model	Precision	Frame Size	Torque	Ratio	Load Capacity
NemaTRUE	13 arc-minutes	60mm to 90mm	up to 180Nm	3:1 to 100:1	up to 3730N
NemaTRUE 90 Right Angle	13 arc-minutes	23mm to 34mm	up to 255Nm	1:1 to 500:1	up to 2900N
DuraTRUE	8 arc-minutes	60mm to 90mm	up to 834Nm	3:1 to 100:1	up to 11150N
DuraTRUE 90 Right Angle	8 arc-minutes	60mm to 90mm	up to 842Nm	1:1 to 100:1	up to 11150N
DuraTRUE 90 Hollow Shaft	8 arc-minutes	90mm to 115mm	up to 865Nm	1:1 to 500:1	up to 11150N
DuraTRUE 90 Dual Shaft	8 arc-minutes	60mm to 90mm	up to 865Nm	1:1 to 500:1	up to 11150N
ValueTrue	4 arc-minutes	60mm to 220mm	up to 2696Nm	4:1 to 100:1	up to 37910N
ValueTRUE 90 Right Angle	4 arc-minutes	60mm to 180mm	up to 2800Nm	1:1 to 50:1	up to 37910N
UltraTRUE	4 arc-minutes	60mm to 75mm	up to 3300Nm	4:1 to 100:1	up to 37910N
UltraTRUE 90 Right Angle	4 arc-minutes	60mm to 75mm	up to 3111Nm	1:1 to 50:1	up to 37910N
EverTRUE Continuous Duty	4 arc-minutes	100mm to 180mm	up to 1010Nm	4:1 to 100:1	up to 44600N



- High Torque to Size Ratio - allows compact design
- Low Backlash - eliminates positioning errors due to lost motion
- Inertia Matching - keeps servo system stable and in control
- High Rigidity - optimizes system response
- Self Re-lubrication - eliminates costly maintenance and downtime
- High Radial Load Capacity - mount pulleys and pinions directly on the output shaft



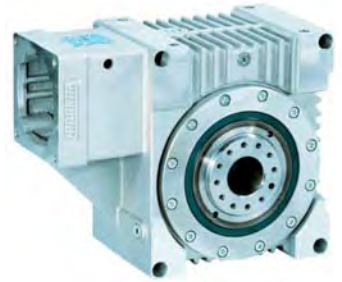
## Precision Servo Worm Gearbox

Atlanta high-performance worm gear units have been specially developed for use with the latest three-phase and DC servomotors.

The following are typical features of Atlanta high-performance gear units:

- Low-clearance gearing (back lash <math><2)</math>, adjustable
- Up to 70% higher loading values
- Casing of light metal for optical heat dissipation
- Robust bevel roller bearings for the output drive hollow shaft, permitting greater additional force

Centre distance (50 to 125mm), gear ratios (4.75 to 50:1) and tooth systems have been chosen in accordance with DIN 3975/76. The tooth shape is optimized so as to permit the adjustment of the clearance simply by changing the centre distance by means of eccentric flanges



## Commercial Series - General Purpose Worm Gearbox

- Size 30 to 130
- Reduction Ration 5:1 to 100:1 (per stage)



# Other products available from Motion Technologies

Also see [www.motiontech.com.au](http://www.motiontech.com.au)

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